

Hydrogen Recovery System, Phase I

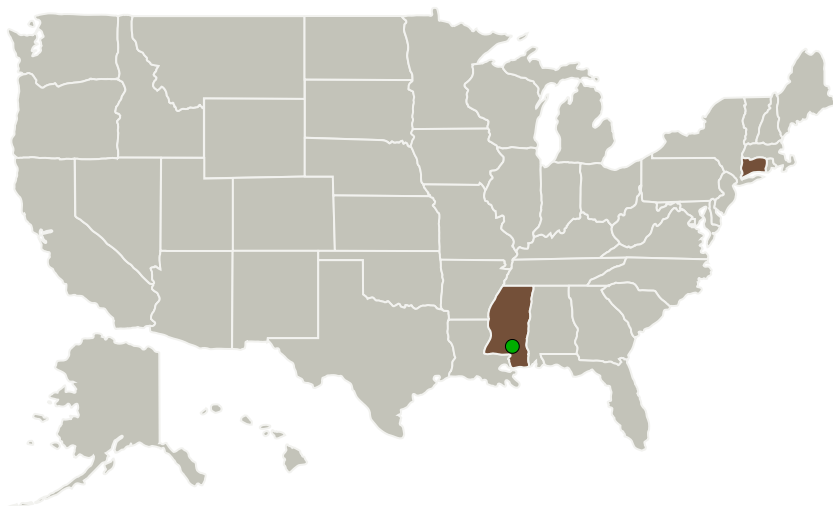
Completed Technology Project (2010 - 2011)



Project Introduction

Liquid hydrogen is used extensively by NASA to support cryogenic rocket testing. In addition, there are many commercial applications in which delivery and use of cryogenic hydrogen is more economical than gaseous hydrogen. Unfortunately, loss of hydrogen resulting from boiloff can both increase the cost of the end product and create safety concerns. Sustainable Innovations and its teammates, The University of Connecticut and FuelCell Energy, Inc., are developing a highly efficient Hydrogen Recovery System (HRS) based on an electrochemical process that converts cool, gaseous hydrogen to pure, high pressure hydrogen that can be stored for subsequent use. We anticipate that this can bring significant cost savings to NASA's rocket test facilities, and open up exciting new avenues for product commercialization.

Primary U.S. Work Locations and Key Partners



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Phase I

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Organizations Performing Work	Role	Type	Location
Sustainable Innovations, LLC	Lead Organization	Industry	East Hartford, Connecticut
Skyre Inc	Supporting Organization	Industry Small Disadvantaged Business (SDB)	
● Stennis Space Center(SSC)	Supporting Organization	NASA Center	Stennis Space Center, Mississippi
University of Connecticut	Supporting Organization	Academia	Storrs, Connecticut

Primary U.S. Work Locations

Connecticut

Mississippi

Project Transitions

**January 2010:** Project Start**January 2011:** Closed out**Closeout Documentation:**

- Final Summary Chart(<https://techport.nasa.gov/file/140129>)

Organizational Responsibility

Responsible Mission Directorate:

Space Technology Mission Directorate (STMD)

Lead Organization:

Sustainable Innovations, LLC

Responsible Program:

Small Business Innovation Research/Small Business Tech Transfer

Project Management

Program Director:

Jason L Kessler

Program Manager:

Carlos Torrez

Principal Investigator:

Trent Molter

Co-Investigator:

Trent Molter

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Technology Maturity (TRL)

Start: **3**
Current: **4**
Estimated End: **4**



Technology Areas

Primary:

- TX13 Ground, Test, and Surface Systems
 - └ TX13.2 Test and Qualification
 - └ TX13.2.2 Propulsion, Exhaust, and Propellant Management

Target Destinations

The Moon, Mars, Outside the Solar System, The Sun, Earth, Others Inside the Solar System